While I am now retired from active design practice I would like to add a few thoughts to the proposed changes to the Model Water Efficient Landscape Ordinance (MWELO). My qualifications to comment are that I am a California Licensed Landscape Architect (Lic #2743), a professional irrigation Consultant, and the owner and author of the IrrigationTutorials.com website that is used as a reference text by many colleges and universities around the world for their irrigation courses, not to mention lots of ordinary homeowners and landscapers.

I won't repeat the comments from the folks at Rainbird, I will simply say that I agree with them and **I would repeat them line by line for you here**. I am surprised by the lack of irrigation knowledge some of the proposal changes display. I must say I am disappointed with your department over this. Rainbird was very kind in calling the Distribution Uniformity Lower Half value of 102% merely "unattainable." I would have mentioned the need for a refresher course in bonehead math! The proposed limit on precipitation rates for sprinklers to 1 in/hr shows a complete lack of understanding of the relationship between precipitation rate and water efficiency. Rainbird again does a good job of explaining this in their letter.

A couple of additional points of my own to consider.

492.7 (C) "The installation of a pressure regulator is required." You had it right the first time. I believe that to achieve your purpose here the term "pressure regulator" should be "pressure regulation device", or better yet just leave it worded as you had it before. A pressure regulator is the name given to a specific piece of equipment also known as a pressure reducing valve. A pressure regulator will **always** cause a reduction in pressure (like any valve), this is a basic issue of physics and hydraulics. Thus on a system where the water pressure is already low, addition of a pressure regulator could lower the water pressure to a level that would result in a lack of sprinkler or emitter efficiency and result in water waste. To overcome this a booster pump would have to be added. That wastes power and contributes to global warming. I think whomever came up with this change means well and it is true, in some situations a pressure regulator is very desirable, but... You had it right the first time. Leave it to the designer to choose the best type of **pressure regulating device** needed to provide optimum pressure as you correctly state in sub-sentence 492.7 (C)1. Sometimes that will mean no pressure regulator at all.

492.7 (H) "Master valves are required on all projects." Master valves increase the energy consumed by a irrigation system, thus you are trading off a *potential* water savings for a *absolute* increase in energy use. A master valve increases the required static water pressure for a sprinkler system by 5 PSI or more. I've designed many systems in flat land areas with marginal water pressure where the addition of a master valve would have created the need for a booster pump. Additional pumps and valves mean more failures and failures also waste water. We need to look at the total picture in California, global warming is an issue as serious as the water shortage, and likely they are related. You may well be creating a worse water shortage indirectly by increasing energy usage and global warming. I understand the issue of leaking valves, just asking if we looking at the big picture here? Is there any research showing that the increased energy use for a master valve is justified by water savings?

Thank you for the opportunity to share my concerns. In looking at these proposals I don't really see that there is a huge need for many of these changes. It almost seems like an over-reaction. These changes appear to be a hastily thrown together, politically motivated attempt to appear to be "doing something." There is no doubt the MWELO needs some fine-tuning, but let's base any changes on facts and research.

Regards,
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